Astronomy Letters 2016 vol.42 N2, pages 69-81

X-ray nova MAXI J1828-249. Evolution of the broadband spectrum during its 2013–2014 outburst

Grebenev S., Prosvetov A., Burenin R., Krivonos R., Mescheryakov A.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

© 2016, Pleiades Publishing, Inc.Based on data from the SWIFT, INTEGRAL, MAXI/ISS orbital observatories, and the ground-based RTT-150 telescope, we have investigated the broadband (from the optical to the hard X-ray bands) spectrum of the X-ray nova MAXI J1828-249 and its evolution during the outburst of the source in 2013–2014. The optical and infrared emissions from the nova are shown to be largely determined by the extension of the power-law component responsible for the hard X-ray emission. The contribution from the outer cold regions of the accretion disk, even if the X-ray heating of its surface is taken into account, turns out to be moderate during the source's "high" state (when a soft blackbody emission component is observed in the X-ray spectrum) and is virtually absent during its "low" ("hard") state. This result suggests that much of the optical and infrared emissions from such systems originates in the same region of main energy release where their hard X-ray emission is formed. This can be the Compton or synchro-Compton radiation from a high-temperature plasma in the central accretion disk region puffed up by instabilities, the synchrotron radiation from a hot corona above the disk, or the synchrotron radiation from its relativistic jets.

http://dx.doi.org/10.1134/S1063773716020031

Keywords

black holes, transients, X-ray sources